

REMARKS

I. Introduction

Claims 15 to 32 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicants note with appreciation the acknowledgment of the claim for foreign priority and the indication that all of the certified copies of the priority documents have been received.

Applicants thank the Examiner for considering the previously filed Information Disclosure Statement, PTO Form-1449 and cited references.

II. Rejection of Claims 15 to 32 Under 35 U.S.C. §103(a)

Claims 15 to 32 were rejected under 35 U.S.C. §103(a) as unpatentable over the combination of Japanese Published Application No. 57000361 ("JP '361") and U.S. Patent No. 6,724,132 ("Kanao"). Applicants respectfully submit that the combination of JP '361 and Kanao does not render unpatentable claims 15 to 32 for at least the following reasons.

JP '361 purportedly relates to a fuel injection system, and Kanao purportedly relates to a spark plug for an engine for a cogeneration system. Applicants respectfully submit that the combination of JP '361 and Kanao does not disclose, or even suggest, a second electrode disposed in front of a spray-discharge orifice with a clearance between approximately 3 to 15 millimeters. The Office Action admits that it is assuming a 3 to 15 millimeter clearance based on Figure 1 of JP '361. Respectfully, Figure 1 does not disclose, or even suggest, a 3 to 15 millimeter clearance and any conclusions regarding clearance size are conjecture at best. Indeed, the Federal Circuit has made plain that "it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." Hockerson-Halberstadt, Inc. v. Avia Group International, Inc., 222 F.3d 951, 956 (Fed. Cir. 2000) (citing In re Wright, 569 F.2d 1124, 1127 (C.C.P.A. 1977)).

Applicants further respectfully submit that the combination of JP '361 and Kanao does not disclose, or even suggest, first and second electrodes having a

curved design, so that the second electrode is not disposed diametrically across from the first electrode, but forms an at least partial circle therewith, as recited in claim 15, as amended. Support for this amendment may be found in the Specification, for example, at p. 6, lines 26 to 29 and in Figure 2B.

As described in the Specification in regard to Figure 2B, this construction may provide that the shared housing of the fuel injector and the spark plug has a considerably slimmer design so that the required installation space at the cylinder head is able to be reduced. The electrodes shown in Figure 1 of JP '361 and Kanao have a linear design and are not curved when viewed in a direction perpendicular to the longitudinal axis of the spark plug. Therefore, the combination of JP '361 and Kanao does not disclose, or even suggest, all of the features of claim 15.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). As indicated above, the combination of JP '361 and Kanao does not disclose all of the features of claim 15. It is therefore respectfully submitted that the combination of JP '361 and Kanao does not render unpatentable claim 15.

Claims 16 to 32 ultimately depend from claim 15 and therefore include all of the features of claim 15. As more fully set forth above, it is respectfully submitted that the combination of JP '361 and Kanao does not disclose, or even suggest, all of the features of claim 15, from which claims 16 to 32 ultimately depend. Therefore, it is respectfully submitted that the combination of JP '361 and Kanao does not render unpatentable these dependent claims for at least the same reasons provided above in support of the patentability of claim 15. In re Fine,

837 F.2d 1071 (Fed. Cir. 1988) (any dependent claim that depends from a non-obvious independent claim is non-obvious).

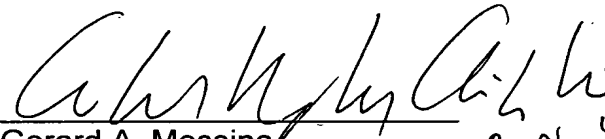
III. Conclusion

Applicants respectfully submit that all of the pending claims of the present application are now in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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